

LOGGED BY S. McLandrich	BEGIN DATE 12-10-07	COMPLETION DATE 12-13-07	BOREHOLE LOCATION (Lat/Long or North/East and Datum) N2120793.234 / E5997915.107 (NAD83)	HOLE ID <b>ESB-R2-PZ-D</b>
DRILLING CONTRACTOR Gregg Drilling and Testing, Inc.	BOREHOLE LOCATION (Offset, Station, Line) Offset 31ft L Sta 46+11 SB Alignment		SURFACE ELEVATION 11.094 ft (NAVD88)	
DRILLING METHOD Mud Rotary	DRILL RIG Failing 1500		BOREHOLE DIAMETER 5 in. (soil); 4 in. (rock)	
SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.4"), SPT (1.4"), Shelby (2.87"), Pitcher (2.87"), HQ Automatic, 140 lbs., 30-inch drop	SPT HAMMER TYPE		HAMMER EFFICIENCY, ERI 72.8%	
BOREHOLE BACKFILL AND COMPLETION 2" dia. Standpipe Piezo Screened 35.0 to 50.0 ft	GROUNDWATER DURING DRILLING READINGS 6		AFTER DRILLING (DATE) TOTAL DEPTH OF BORING 98 ft	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 In	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP-SC), brown, dry, with CLAY and GRAVEL, with multiple asphalt layers. [FILL]		S1										
9.09	2		1.5', grades moist.												
	3		2.5', grades olive brown with asphalt fragments, crushed white SAND-sized rock fragments.		S2	8 14 9	23	100							
7.09	4		GRAVELLY lean CLAY (CL), dark greenish gray, moist, with SAND, GRAVEL is angular to rounded and fine to coarse, with asphalt fragments.		S3	1 1 2	3	100							
5.09	6		Fat CLAY (CL), medium stiff, dark gray, wet, with pockets of SANDY CLAY, with organic odor, trace fine SAND. [BAY MUD]												
	7		Poorly graded SAND with CLAY (SP-SC), very loose, dark gray, wet, fine, with lenses of sandy CLAY. [MARINE SAND]		U4		50 psi	63							
3.09	8		Fat CLAY (CH), medium stiff, bluish gray, wet, with decayed vegetation. [BAY MUD]												
1.09	10														
-0.91	12														Install 8" diameter conductor casing to 10'
	13		Poorly graded SAND (SP), dark greenish gray, wet, fine to medium, with CLAY lenses. [MARINE SAND]		U5		50 psi	97							Install 5" casing to 12.5'
-2.91	14														
-4.91	16														
-6.91	18				S6	3 4 2	11	100							
	19		Poorly graded SAND with CLAY (SP-SC), loose, dark olive gray, wet, fine to medium, with shells up to 1.5" diameter.		S7	6 5 5	10	67							
-8.91	20														
-10.91	22		Grades dark gray, with lenses of CLAYEY SAND.		S8	3 3 11	14	100							
-12.91	24		Poorly graded SAND (SP), dense to very dense, dark yellowish brown, wet, fine to medium, with trace fines, with broken shell fragments.		S9	6 17 17	34	78							
	25														

(continued)



Department of Transportation  
Division of Engineering Services  
Geotechnical Services

REPORT TITLE  
BORING RECORD

DIST. 4 COUNTY S.F. ROUTE 101 POSTMILE 8.3/9.4

HOLE ID  
ESB-R2-PZ-D

EA  
163701

PROJECT OR BRIDGE NAME  
Doyle Drive Replacement Project

BRIDGE NUMBER 34-165L PREPARED BY T. Carroll

DATE  
11-3-08

SHEET  
1 of 4

Figure

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 in	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
-14.91	25		Poorly graded SAND (SP), dense to very dense, dark yellowish brown, wet, fine to medium, with trace fines, with broken shell fragments.												
	26														
	27		Grades with increased CLAY content.		S10	7	63	100							
-16.91	28		27.5', grades clean.			27									
	29		28.0', grades dark gray.			36									
	30		28.5', grades dark yellowish brown, trace fines.		S11	10	29	100							
-18.91	31		30.0', grades to dark gray.			13									
	32		Poorly graded SAND (SP), very dense, yellowish brown, wet, fine, with trace fines, with iron-oxide stained horizontal banding. [COLMA SAND]			16									
-20.91	33				S12	18	50/6"	100							
	34					50/6"									
-22.91	35				S13	18	59	100							
	36					24									
-24.91	37					35									
	38		Grades very fine.		S14	28	90/10"	100							
-26.91	39		Grades with slight cementation, grades dark olive brown.			40									
	40				S15	18	66	100							
-28.91	41					25									
	42					41									
-30.91	43		Grades with heavy iron-oxide staining.		S16	25	50/6"	100							
	44					50/6"									
-32.91	45				S17	21	85	100							
	46					36									
-34.91	47					49									
	48				S18	38	50/4"	100							
-36.91	49					50/4"									
	50				S19	18	67	100							
-38.91	51					28									
	52					39									
-40.91	53				S20	46	50/6"	100							
	54					50/6"									
-42.91	55				S21	30	84	100							
						40									
						44									

(continued)



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-44.91	55		Poorly graded SAND (SP), very dense, yellowish brown, wet, fine, with trace fines, with iron-oxide stained horizontal banding. [COLMA SAND]												
-46.91	57		57.5', grades with increased CLAY content.	S22	17 31 46	77	100								
-48.91	58		Poorly graded SAND with CLAY (SP-SC), medium dense, dark olive gray, moist, fine.	S23	11 15 20	35	100								
-50.91	59		58.5', grades dark greenish gray.												
-52.91	60		SEDIMENTARY ROCK (Sandstone "Wacke"), light gray and yellowish brown, very intensely weathered, moderately soft, very intensely fractured, with CLAY seam infilling.	U24		300 psi	100								61', rig chatter
-54.91	61		Moderately hard, less CLAY seam infilling.	U25			100								
-56.91	62		Fine to medium-grained, massive, light yellowish brown, moderately weathered, intensely fractured, fractures range from near vertical to 45° with occasional subhorizontal fracture, grains are angular to subangular (commonly quartz and feldspar), secondary mineral deposit on some fracture surfaces.	C26			86	0							
-58.91	63			C27			100	0							
-60.91	64			C28			100	0							
-62.91	65		68.8' - 69.2', very intensely fractured.	C29			94	10							
-64.91	66		71.2' - 72.3', very intensely fractured.	C30			100	7							
-66.91	67														
-68.91	68		76.1' - 77.1', very intensely fractured.	C31			100	32							Hole caved while coring at 75'; install 63' of 4" casing
-70.91	69														
-72.91	70		80.6' - 81.1', very intensely fractured. Grades to slightly weathered.												PID= 1.6 ppm
	71		SEDIMENTARY ROCK (Shale), very thinly bedded to moderately bedded (locally laminated), dark gray, slightly weathered, moderately hard, slightly fractured/dense (non-fissile).	C32			100	0							
	72		82.0' - 82.2', joint with clay coating.												
	73		82.2' - 84.8', brecciated zone.												

(continued)



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	85		SEDIMENTARY ROCK (Shale), very thinly bedded to moderately bedded (locally laminated), dark gray, slightly weathered, moderately hard, slightly fractured/dense (non-fissile). 86.6' - 87.1', polished fractures.												PID= 1.6 ppm	
-74.91	86				C33			90	90							
	87															
-76.91	88				C34			100	50							
	89															
-78.91	90		90.0', intensely fractured.													
	91		91.0', predominantly laminated (commonly inclined 70° to 90°), with fractures commonly parallel. 91.3' - 94.1', very intensely fractured.		C35			100	0							
-80.91	92				C36			100	0							
	93															
-82.91	94				C37			100	0							
	95															
-84.91	96															
	97															
-86.91	98		Borehole terminated at a depth of 98 feet on 12/13/2007.													
	99		See Boring Record Legend for soil classification chart and key to test data and sampler type.													
-88.91	100															
	101															
-90.91	102															
	103															
-92.91	104															
	105															
-94.91	106															
	107															
-96.91	108															
	109															
-98.91	110															
	111															
-100.91	112															
	113															
-102.91	114															
	115															



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